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How Our Land Is Used

THE land area of the United States is about 1,905 million acres, not counting important rivers and lakes. Three-fourths of the land is used for crop and livestock production. The cropland, pasture, and grazing land add up to nearly 1,500 million acres. Besides, there are about 260 million acres in forests, used mostly for producing lumber, pulpwood, and fuel wood. Thus crops, pasture, and timber take about 1,700 million acres, or 90 percent of the Nation's land area.

Of the other 10 percent, about 94 million acres, of slight agricultural use, consists of deserts, rocky areas, swamps and the like. This portion of the land has some of the Nation's mineral and oil deposits. In addition about 87 million acres are used primarily for recreation and travel, made up of parks, game refuges, railroads, highways, farmsteads, military lands, and similar tracts. And, finally, there are about 13 million acres in cities and towns. These are the major uses of the land, though much of it is used for several purposes.

Only about a fifth of the land area, or a little over 400 million acres, is used for crop production. This includes the land actually used in raising crops as well as idle or fallow cropland. In recent years about 350 million acres have been planted in crops

or used for growing them. Thus, the enormous crop production of present day agriculture comes from less than a fifth of the land area.

A third of the cropland is located in the Great Plains, a fifth in the Corn Belt, and roughly a sixth in each of the following regions: the Northeast and Lake States, the South, and the West.

By far the largest single use of the land, involving over a billion acres, is for pasture and grazing. Production of livestock and livestock products thus takes up well over half of the land area. This doesn't include cropland used for growing feed. About 700 million acres of grassland and 350 million acres of forest land are used for pasture and grazing.

As would be expected, nearly three-fourths of the pasture and grazing land is in the West and Great Plains, with much of the balance located in the South. Smaller amounts are in the Northeast, Lake States, and Corn Belt.

More land is in farms now than ever before. The 1945 Census reports about 1,100 million acres in farms. This is nearly 80 million acres more than in 1940, and 250 million more than in 1900. Some of this increase is due to changes in census definitions. Before 1940 much of the grazing land in the West was not counted as land in farms. To-

MAJOR USES OF THE NATION'S LAND

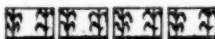
PASTURE AND GRAZING



706 MILLION ACRES GRASS LAND

945 MILLION ACRES
FOREST PASTURE

CROPLAND



403 MILLION ACRES

FOREST LAND (NOT GRAZED)



257 MILLION ACRES

RURAL LAND OF LITTLE FARMING USE (DESERT, ROCK, SWAMPS, ETC.)



94 MILLION ACRES

PARKS, RAILROADS, HIGHWAYS, MILITARY LANDS, FARMSTEADS, ETC.



87 MILLION ACRES

CITIES AND TOWNS



13 MILLION ACRES

Each symbol represents
100 million acres

TOTAL LAND AREA
1,905 MILLION ACRES

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day the land in farms is 60 percent of all the land in the country. The remaining 400 million acres used in crop and livestock production consists mostly of public land used for pasture and grazing. Just about all of the cropland is in farms.

Of the 257 million acres of forest land not grazed—that is, used primarily for producing lumber and pulpwood—89 million acres, or little more than a third of the total, are located in the West. Another 89 million acres are in the Northeast and Lake States. The South has about 61 million acres of forest land, a little more than a fifth, while the Corn Belt has only about 18 million acres.

The bulk of the land used for urban purposes is located in the industrial

Northeast and States bordering the Great Lakes. In Connecticut, Massachusetts, Rhode Island, and New Jersey, more than 10 percent of the land is in urban use such as factories, homes, and office buildings. Elsewhere urban areas account for only 1 or 2 percent of the land in each State.

Although there are parks, game refuges, and military reservations in just about all the States, most of the land used for these purposes are found in the West, particularly the Rocky Mountain States. The West also has over 80 percent of the desert land, rocky areas, swamp land, and other land of little agricultural value.

Land in railroads, highways, and farmsteads is distributed roughly according to the population and the num-

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ber of farms. Thus more of this land is found in the populous East and Midwest than elsewhere.

About 75 percent of the Nation's land is now privately owned. About 20 percent is owned by the Federal Government. A large part of the Federal land is forest, grazing land, and desert, and is located in the West. Much of it is

used by farmers and ranchers, while some is in national parks, game refuges, Indian reservations, and military establishments. The other 5 percent of the land is owned by State and local governments, with a good deal of it used as parks, forests, and grazing land.

L. A. REUSS

Bureau of Agricultural Economics

An Epoch in Corn Production

FARMERS today are producing 20 percent more corn from 10 percent fewer acres than they did two to three decades ago. The 3-billion bushel corn crops of the past 5 years (1942-46) are a half billion more than were produced in the 10-year period ending in 1932. And these crops have been produced on 10 million fewer acres.

Like so many other things, this remarkable record is the direct result of mass production. Heading the list of things that has made mass production possible is the widespread use of hybrid seed within the past 10 years, particularly in the Corn Belt. First introduced to farmers in the early thirties, literally hundreds of varieties of hybrid corn are now used throughout the country, with each variety adapted especially for a local area. This year hybrid seed will be used to plant well over two-thirds, perhaps three-fourths, of the corn acreage in the United States. In the Corn Belt hybrid seed has been planted on just about all the acreage during the past 4 to 5 years.

Fifth More From Hybrids

Tailor-made for long or short growing seasons, for soil, weather, and other growing conditions of local areas, and for resistance to drouth, insects, and diseases, hybrid varieties produce yields about a fifth more than do open-pollinated varieties. Thus it is believed that corn production in 1946 was 400 million bushels greater than if open-pollinated varieties had been used on all the acreage.

Of course the unusually favorable corn weather of the past 5 years, despite the late spring rains, also helped increase production. In 1946 the good

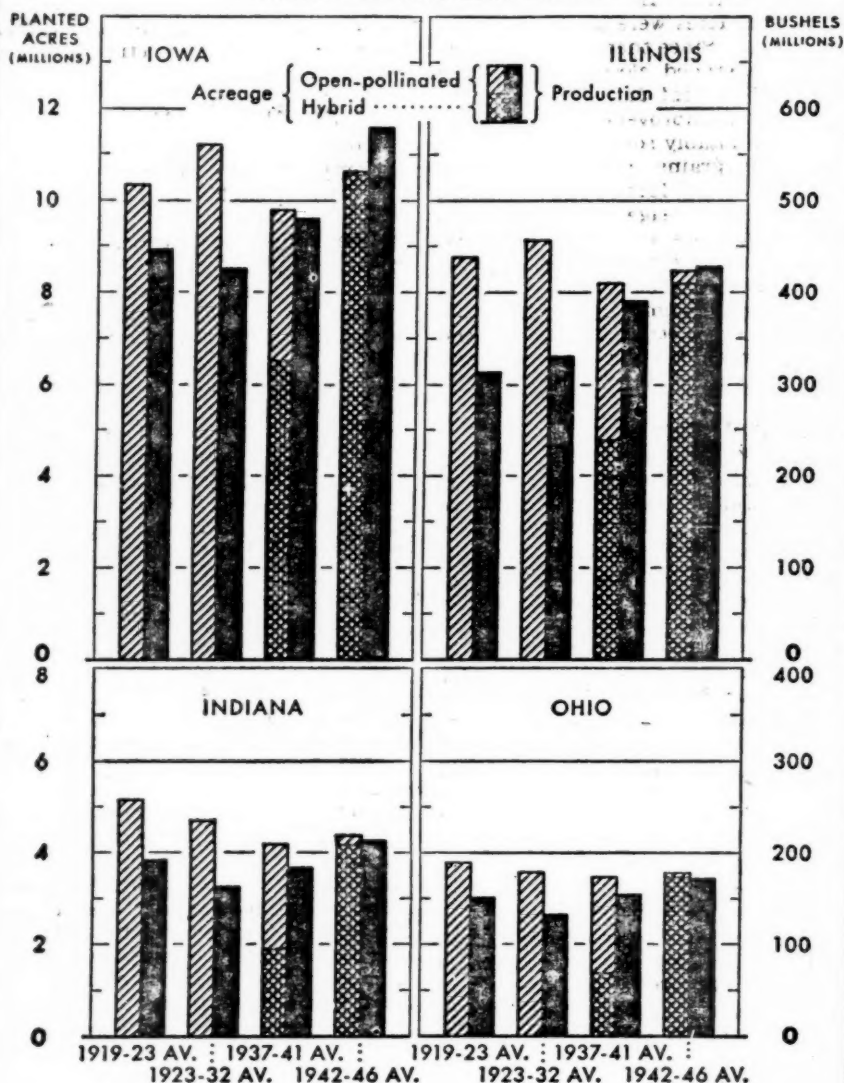
weather probably increased the crop by about 270 million bushels. This estimate is arrived at by comparing the average yields for a similar period of good weather (1919-23) with the yields for a period of average weather (1923-32), and then using the difference to multiply by the average acreage harvested in 1942-46.

Farmers are now using two to three times more fertilizer on their corn than they did before the war. This increased use probably has added from 1 to 2 bushels to each acre harvested. Thus fertilizer increased the 1946 crop by about 100 million bushels.

Though hard to measure, the much greater use of mechanical power in the past 5 years has boosted corn production a lot. With their modern machines, farmers are less at the mercy of the weather. A farmer can handle 3 acres of corn land with tractor and power equipment as against 1 with horses and mules. Thus the late, wet springs of the last few years, particularly in the Corn Belt, didn't hit farmers as hard as before because they could plant or cultivate so rapidly after rainy spells. Modern equipment makes it possible for farmers to keep their operations on schedule and thus helps to get bigger corn production.

Suppose that during the past 5 years there had been no hybrid seed, only average weather, not much increased use of fertilizer, and no advance in mechanical power. There almost certainly would not have been the 3 billion-bushel corn crops of recent years. In 1946, for example, the crop would have been about 2½ billion bushels, instead of the 3¼ billion bushels actually produced.

MORE CORN FROM FEWER ACRES **HYBRIDS, GOOD WEATHER BOOST OUTPUT** **IN FOUR LEADING CORN STATES**



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The four sets of bars show the acreage and production during four different periods. In the first period the weather was good; no hybrids were then in use. In the second period the weather was only average, still no hybrids in use. In the third period the weather was average, but hybrids had come into fairly general use. In the fourth period the weather was very good, and hybrids were planted on just about all the acreage.

Getting more corn per acre has made it possible for farmers to plant more land in other profitable crops since the use of hybrid seed became general in the mid-thirties. Before then, around 100 million acres were planted in corn most years. Since then, the corn acreage has averaged close to 90 million acres, a 10 percent drop.

The recent improvements in competing crops, notably soybeans, sorghums, and small grains—along with good prices—have led farmers to cut down on their corn acreage. Also they have been giving more attention in the last decade to rebuilding and maintaining the fertility of their soil by planting more acres in legumes and grasses, and less in corn and other row crops. And this better care of the soil has also helped raise corn yields.

Big Cut in Mountain, Plains States

Over half of the reduction in the corn acreage has been in the Great Plains and Mountain States, where the drouth hit corn harder than any other crop. Farmers in the Southern Great Plains turned to sorghums and wheat. Recent development of better sorghums, adapted to combine harvesting, have helped boost the acreage of this crop. Farmers in Nebraska, South Dakota, and Colorado are also raising more sorghums. On the other hand, Mountain State farmers have been shifting more to barley for feed. In recent years farmers in the Great Plains and Mountain States have made great strides in mechanization, particularly in harvesting of small grains. On many farms in these regions corn acreages are not big enough to justify owning mechanical corn pickers.

The five Corn Belt States have had the next largest drop in corn acreage— $3\frac{1}{2}$ million acres. The decline was especially large in Missouri. In these States farmers have increased their soybean acreage by about 6 million acres since 1932, much of it at the expense of corn. Missouri farmers have been shifting more to small grain-lespedeza combinations which compete favorably with corn in meeting feed needs and at the same time help much in conserving soil fertility.

Farmers in Kentucky, Tennessee, and

in other parts of the Appalachian area are also producing more feed from small grains and legumes than they did from corn. Oats alone have been yielding a little more feed per acre than corn in many parts of the Appalachian region since better varieties have been introduced.

Cost per Bushel Less

One of the most important results of bigger yields and greater mechanization of corn production is that power and labor costs are much less. For example, a group of farmers in Champaign and Piatt Counties, Ill., have kept records on corn production costs since 1920. During the period 1920-28 it took an average of 13.8 man hours, 32.6 horse hours, and 0.8 tractor hours to produce an acre of corn—planting, cultivating, and harvesting. In 1944 it required only 6.4 man hours, 0.9 horse hours, and 4.7 tractor hours. Valued at 1944 rates an hour (man labor 55 cents, horse work 30 cents, and tractor work 50 cents) savings amounted to \$4.07 for the labor costs and \$7.55 for power costs.

And the savings on producing a bushel of corn are even more striking. This is because of higher yields per acre, from 48.7 bushels in 1920-28 to 56.4 bushels in 1944. Despite the higher prices in 1944 for labor, power, and other things, these farmers produced a bushel of corn at only two-thirds the cost that they did in 1920-28.

Further advances in corn production are almost certain to follow from even wider use of hybrids, greater use of fertilizer and increased mechanization. This will be particularly true in areas outside of the Corn Belt. New and improved hybrid varieties are being developed very rapidly, not only for the Corn Belt but for other areas. If hybrids are used anywhere near as widely in these other areas as they are in the Corn Belt, it is quite possible that corn production would be increased even further, by 100 million bushels. So, with more machine power and fertilizer, together with favorable weather, corn crops of nearly $3\frac{1}{2}$ billion bushels could be produced just within a few years.

C. W. CRICKMAN
Bureau of Agricultural Economics

California Expands Market for Western Lambs

FOR the past 2 years California has shipped only about a fifth as many lambs to eastern markets as before the war. In addition, she is taking a lot more from other western sheep States, to meet the needs of her own greatly expanded population. This adds up to the fact that a much larger share of the total western lamb output is slaughtered in California, and a smaller share goes to eastern markets.

Since the beginning of World War II, meat has followed people in another migration to California, only less spectacular than in gold rush times when sheep were trailed into the State to feed the miners. The 13 range sheep States (11 far western, South Dakota, and Texas) now have about 70 percent of the Nation's sheep. During the war California population increased by over 2 millions, with further growth continuing after the war. But a larger part of the lamb crop of the Western States comes to California each year for slaughter even though the total crops have been very small in recent years.

Before the war, sheep and lamb slaughter in the State averaged about 2½ million head. But in both 1945 and 1946, slaughter of sheep and lambs in the State topped 3 million head. Of this number about a million were shipped in for immediate slaughter, chiefly from Idaho, Utah, Oregon, Nevada, and Arizona. Several hundred thousand head of lambs and sheep also are shipped in each year as stockers and feeders, eventually increasing the slaughter supply.

During each of the past 2 years, approximately 200,000 feeder sheep and lambs have fattened on irrigated pastures in the Imperial and Palo Verde Valleys, reaching heavy weights before being slaughtered. Consistent and extensive enlargement of irrigated pastures, including much high-producing ladino clover in the central valleys has increased the ability to fatten feeder lambs otherwise often sold to midwestern feeder operators.

Early Spring Lamb Rush

California has unique advantages for early lamb production. Pastures and

ranges, which normally provide green winter feed for ewes and lambs, come to peak feeding value in April or May for finishing lambs. Sheepmen have used these favorable conditions to increase the importance of the early lamb crop. In the last 20 years the so-called early crop has increased from about two-thirds of the number of all lambs raised to nearly 85 percent of the total. Deliveries start in March, usually from bands which lambled in late October or November in the San Joaquin Valley. Here descendants of the Basques from the sheep raising mountainous province in northern Spain continue to be among the most skilled and respected of the State's sheepmen.

Sacramento Valley and Central coast offerings continue the supply of fat lambs through June until intermediate season lambs from late districts and other States are available. The Imperial Valley, famous winter vegetable district, formerly was an important source of milk-fat lambs but more recently has shifted to extensive feeding of older lambs and sheep shipped there from other States.

Shipments East a Fifth Prewar

California is a meat deficit State and its people have a keen taste for spring lamb, but the normal spring movement in past years was so heavy that eastern markets, willing to pay a premium at this season, claimed nearly half a million head during the March-June shipping period. Sales are often made by means of advance contracts made direct between producers and buyers. Within a short space of time, contracting may begin and increase with feverish intensity until most of the lambs in principal sheep districts are bought. In the last 2 years eastern shipments have averaged only about one-fifth of the previous normal number. Enlarged slaughter plant capacity and extension of supplemental fattening operations on irrigated pastures will help keep more of these lambs for Pacific Coast appetites in future years.

Present sheep distribution in the State differs considerably from what it was in 1860 when the California Wool

Growers Association was first organized and fine wool sheep roamed over much of the area now included in the city of Los Angeles. Almost two-thirds of them are now in the great central valley, the agricultural heart of the State. The northern portion of the central valley is known as the Sacramento Valley and the southern portion as the San Joaquin Valley which extends from near Stockton to Tehachapi mountains southeast of Bakersfield. About one-fourth of present sheep numbers are located in the north coast counties and the central bay district. Others are widely distributed through the other portions of the State. Aside from winter feeding operations, southern California now has few sheep.

Industry Over 100 Years Old

When Dana in 1835 recorded his visit to California, in his *Two Years Before the Mast*, livestock were already numerous. The folded cattle hides which his ship gathered in the coastal trading shared with silver as chief mediums of exchange. They were called "California Bank Notes" by the sailors who were forced to laboriously carry them on their heads as they waded through the surf to the small boats. These hides, and huge bags of tallow, were loaded on sailing vessels and carried to Boston in exchange for eastern finery. The large flocks and herds then in evidence had grown from a few head located at each mission by the Spanish padres in the 1770's.

Inconsistent and possibly exaggerated reports place the number of sheep owned by the 17 missions in 1825 as high as a million head, and many others were probably in private hands. However, drouths brought huge losses and wholesale slaughter also greatly reduced flocks at the time the flocks went into private hands. After a while there were large bands of privately owned sheep in the San Joaquin Valley, in the mountains of southern California and elsewhere. In these early days, exports were limited to products which could stand long voyages such as wool, tallow, hides, and grain.

After the discovery of gold in California, the horde of gold seekers and others brought a new booming market

for meat which greatly enhanced sheep values. Sheep worth 75 cents to \$1 per head in New Mexico or in Missouri in 1849, were worth \$12 to \$15 in California, and many thousands were driven in to get the quick profit. In the summer of 1849, one operator brought in 25,000 head in 10 bands of 2,500 each. More followed the next year. During the period 1850 through 1856, it is estimated from early accounts that nearly 600,000 head were driven to the gold fields from New Mexico alone. And many flocks came from midwestern States over more northern routes.

Biggest Number in 1876

A wonderful miscellany of mixed breeding resulted. Mutton types were favored in gold-rush times, but demand soon shifted to the merino types. In 1860 alone, almost 100,000 fine wool sheep were brought into Los Angeles County. By 1880, three-fourths of the sheep in the entire State are believed to have been high-grade merinos. Rapid increases from 1860 to 1876 brought sheep numbers to an all-time peak credited in records at 7,700,000 head.

For nearly 50 years following 1877, a decline in the value of sheep and wool brought a sharp and rather steady decrease in sheep numbers in the State. During these years, large areas of range lands were divided into smaller farms. However, with minor variations, the trend in numbers since the low point in 1915 was gradually upward until 1931 when there were 3,284,000 head of stock sheep and lambs. For the next few years, the trend was downward, reaching a low of 2,596,000 head in 1934. A sharp increase in 1935 brought sheep numbers back to nearly 3 million head and continued at about this number for the next several years.

California stock sheep numbers, after ranging closely around 3 million head for a number of years, began a steady drop in 1942, which within 5 years, cut the State's total to below 2 million head. During these years, competition with cattle for pasture and other feeds has been especially keen. Cattle numbers gained, and more of the former sheep pasture was devoted to grain or other farming. Skilled sheep labor was a scarce commodity and high in price.

The 1,974,000 head of stock sheep in the State on January 1, 1947, are sufficient to produce, with an average cuthorn, a crop of nearly 1,500,000 lambs and a wool clip of over 15 million pounds, lamb and short fleeces included. The 1946 total cash receipts from these sources was about 31 million dollars. This is still big sheep business.

Production Outlook Bright

For a good many years, the chief emphasis in California has been on lamb production rather than wool. In recent years lamb sales have accounted for nearly three-quarters of all sheep income. Lamb production is largely from white-faced ewes of straight or mixed Rambouillet stock, whose flocking instinct is invaluable in the handling of range bands. The use of mutton rams of Hampshire, Suffolk, and other quick-maturing breeds produces a rapid-growing crossbreed which makes the maximum gain in mutton quality under range conditions. To maintain or increase breeding ewe numbers, large shipments of white-faced ewes or ewe lambs are regularly obtained from other western range sheep States.

The prospects of further irrigation and intensified agriculture in the valleys by no means signifies that lamb and wool production will drop below its present level, though this is possible. The mild climate and other favorable resources provide millions of acres of permanent grazing land, much of which is more suitable for sheep than cattle, and in long-time competition may be counted as sheep range. During recent years vigorous and novel measures for stamping out coyotes and other predators have been used. Better breeding stock is consistently being used, both for producing fast-growing lambs and improving the wool clip. Agricultural specialists are active in helping ranchers and farmers use the newest techniques in disease control, with notable results in larger lamb yields.

All these developments lead thousands of California producers to believe that in the future, tourists will continue to see sheep production as an important part of the California scene.

HAROLD C. PHILLIPS, BAE
Sacramento, California

Farmers Buy Food, Too

NEARLY a fifth of a farmer's cash outlay for various commodities is for food. In the late twenties it was about 17 percent. Last year farmers spent about 2¾ billion dollars for food. What they spent was equal to about an eighth of all the sales in retail food stores.

Although most farmers still produce a good deal of the food they eat, food purchases are a big item. And food prices are important in figuring the farm budget.

The prices farmers pay for the things they buy determines parity prices for farm products. When the farmer pays higher prices at the store for food, parity prices go up for the farm products he has to sell, unless prices of nonfarm products have declined enough to offset the rise in food prices. Though it appears that this sets in motion a vicious circle of food price advances, it is held in check by the limited effect of farm demand on food prices generally. The farmer makes only about one out of every eight of the Nation's food purchases.

Large domestic and foreign demands have pushed food prices paid by farmers to record highs in recent months. The index has averaged 228 since June 1946, when price controls were first removed, compared to the average of 114 for 1935-39, and 208 in the year 1919. The lowest recorded annual average is 90, for the year 1932. In all cases, the 1910-14 average is used as 100.

Merchandising and packaging influence the prices farmers pay for food. During the war, glass containers replaced tins for some canned foods, increasing the cost of packing. Food shortages saw the disappearance of many of the popular large size economy packages. Future merchandising will see additional changes as new food marketing techniques develop from recent research experience. The future cost of food to the farmer and to others will depend not only on the abundance of food, but on the efficiency of its distribution and merchandising.

ROBERT E. BRANSON
Bureau of Agricultural Economics

Tenure Changes in the South

THE South today has a fifth fewer tenants than in 1940—the lowest in half a century. Following the trend for the Nation as a whole, the proportion of farms operated by tenants in the South fell from 48 percent in 1940 to 40 percent in 1945. And along with the drop in tenancy, the number of owner-operated farms went up to 10 percent in the 16 Southern States. But much of the increase in ownership was in small farms.

Almost two-thirds of the country's tenants are in the South. And about a third of the South's tenants are share croppers, who ordinarily contribute little except their own labor in operating the farms. Mostly, they depend on their landlords for workstock or power, for close supervision in growing and marketing crops, and for advances in cash or kind.

In 1920, there were a little over a half-million croppers in the South. By 1930, however, their number reached a peak of 776,000. Since then the number has declined with the decrease in cotton acreage, reaching a low of 447,000 in 1945.

Ten years ago croppers made up 12 percent of the total number of persons working on Southern farms. By 1945 the proportion dropped to about 9 percent. The proportion of hired workers in the region went down a little from 1940 to 1945. The number of family workers, including owners, tenants, and croppers, dropped 6 percent in the same period. The number of croppers fell about 18 percent and hired workers 21 percent.

Southeast and Southwest

In the Southeastern States the number of persons employed in agriculture dropped about 9 percent from 1940 to 1945. The number of hired farm workers declined 18 percent, family workers 6 percent but the number of croppers (included as family workers) was unchanged.

Cropper numbers did not decline in the Southeast because of the big demand for labor in the area by industries. More farm owners put their laborers on a crop-sharing basis in order to hold them on the farms. Cotton

and tobacco production depends on a large labor force, particularly at harvest time. Some landowners think that they can have a more efficient and steady labor force by giving their workers a share of the crop.

Farm owners in the South Central States also depended on croppers. But farmers in the four Southwestern States relied more on wage workers. In the Southwest hired laborers declined a fifth while croppers dropped a third.

Fewer White Tenants

White tenants decreased much more than nonwhites. The decline from 1940 to 1945 was about 27 percent for white tenants, compared with only 6 percent for nonwhites.

About 41 percent of all Southern tenants were nonwhites in 1945, only 35 percent in 1940. Nonwhite croppers increased from 55 percent of all croppers in 1940 to about 61 percent in 1945. Although nearly a fourth of the farmers in the South were nonwhites in 1945, only a tenth were owners.

High farm incomes and increased nonfarm job opportunities have improved tenure conditions in the South. The scarcity of farm workers improved the bargaining position of many tenants and croppers. Then too, mechanization increased the efficiency of farm workers. In the past, low incomes on Southern farms have been largely due to small output per worker.

More mechanical power in Southern farming has helped tenants. The doubling of the number of tractors on Southern farms in the past 5 years has greatly increased the output per worker. Even greater change is bound to come as more machines are used and improved farming becomes more widespread.

Mechanical cotton pickers, choppers, and flame cultivators are increasing on many cotton farms. As yet, however, not enough of these machines are available to change the tenure situation much. But it is due for revolutionary changes as more and more of these machines are used.

The new developments in cotton production will probably bring many

changes in the Delta. In this area croppers and tenants are most numerous and the land is well suited to use of machine power. In most of the Delta counties of Mississippi, four-fifths or more of the farms were operated by tenants and croppers in 1945. It is in such areas that the biggest tenure changes are likely to come in the next decade. Hired workers probably will replace many tenants and croppers as plantation owners shift to machine power. And many of these hired workers will be former croppers trained to operate the machines.

Tenure changes will not be as great in the tobacco-producing areas as on cotton farms. Although tractor power and improved seeds and cultural practices have stepped up tobacco production, labor-saving machinery is largely lacking for harvesting and curing. In North Carolina, the leading tobacco State, croppers increased 4 percent from 1940 to 1945, and accounted for over half of all tenants. There are similar increases in the percent of tenancy in other tobacco areas.

Future Prospects

If present trends continue two things appear fairly certain to change the present tenure system. *First*, there will be fewer croppers and tenants in the farm labor force and a higher proportion of the farm work will be done for cash wages rather than a share of the crop. *Second*, there will be fewer but larger farms as more machinery is used and croppers and tenants are replaced or become hired workers.

The trend toward larger farms, especially those of the family size, should mean better incomes and better living on farms. It should also mean more efficient production of food and fiber and lower costs to consumers. But, if job opportunities off farms do not continue to be pretty good, many workers may return to farms, probably small ones. And because there would not be enough work for them a surplus labor condition would result. This would hold back the shift to machine power farming and continue the present tenure system.

MAX M. THARP
Bureau of Agricultural Economics

New Farm Yearbook

THE new yearbook of agriculture 1943-47, *Science in Farming*, is virtually an encyclopedia on scientific research in agriculture since the war began. The new yearbook is one more volume in the series begun several years ago and interrupted by the war.

The 135 articles in the new volume deal with a wide variety of subjects. Some, picked at random, are on: The advantages and limitations in using DDT on farms; benefits of growth regulators to fruit and truck crop farmers and others; recent developments in hybrid corn, oats, sorghums, and other crops; relation of day length to blossoming of plants and the geographic range of growing specific varieties; cross-breeding dairy cows to get more butterfat as well as more total output; finding out how good a milker a 1- to 6-month old calf will be by watching early udder development; tailor-made hogs for a wide range of purposes.

In a concluding article, Dr. Sherman E. Johnson, assistant chief of BAE, points out: "Progress in farm technology can result in net social gain, but this is a potentiality, and not an inevitable consequence. Farm people will need to learn how to live with the new techniques, and to use them to their advantage."

Copies of the yearbook can be obtained for \$2 from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Poultry and Eggs

FARMERS in mid-March sold their eggs and chickens at the second highest average prices on record for that date. Prices were second only to the highs of 1920. But because of sharp increases in feed costs, egg prices were not so favorable as last year.

Egg prices are not expected to rise as much as usual between now and the end of the current calendar year. Short supplies and high prices of red meats have made people buy more eggs, chickens, and turkeys. But this condition is not expected to continue after mid-year when prices of red meats start going down. Also, any downturn in business activity will tend to keep prices of poultry products from increasing.

Economic Trends Affecting Agriculture

Year and month	Industrial production (1935-39 = 100) ¹	Income of industrial workers (1935-39 = 100) ²	1910-14 = 100				Index of prices received by farmers (August 1900-July 1914 = 100)			
			Wholesale prices of all commodities ³	Prices paid by farmers		Farm wage rates ⁴	Livestock and products			
				Commodities	Commodities, interest, and taxes		Dairy products	Poultry and eggs	Meat animals	All livestock
1910-14 average.....	58	50	100	100	100	100	100	101	101	101
1915-19 average.....	72	60	158	151	150	148	148	154	163	158
1920-24 average.....	75	122	160	161	173	178	159	163	123	142
1925-29 average.....	98	129	143	155	168	179	160	155	148	154
1930-34 average.....	74	78	107	122	135	115	105	94	85	93
1935-39 average.....	100	100	118	125	128	118	119	109	119	117
1940-44 average.....	192	234	139	150	148	212	162	146	171	164
1945 average.....	203	290	154	180	174	350	197	196	210	203
1946 average.....	170	270	177	203	194	378	242	198	256	240
1946										
April.....	165	252	161	188	181	362	199	166	225	205
May.....	159	252	162	192	185	-----	198	173	226	207
June.....	171	269	165	196	188	-----	207	178	230	213
July.....	172	273	182	209	199	378	245	196	268	247
August.....	177	290	188	214	204	-----	257	199	294	263
September.....	180	292	181	210	200	-----	271	221	249	250
October.....	181	293	196	218	207	378	300	257	318	299
November.....	182	298	204	224	212	-----	307	230	313	294
December.....	181	305	206	225	212	-----	312	226	311	294
1947										
January.....	188	306	207	227	215	399	292	201	306	281
February.....	189	307	211	234	221	-----	270	192	319	278
March.....	189	-----	218	240	227	-----	269	199	345	292
April.....	-----	-----	-----	243	230	-----	267	204	331	283

Year and month	Index of prices received by farmers (August 1900-July 1914=100)								Parity ratio ⁵	
	Crops							All crops and live-stock		
	Food grains	Feed grains and hay	To-bacco	Cotton	Oil-bearing crops	Fruit	Truck crops			All crops
1910-14 average.....	100	101	102	96	96	99	-----	99	100	100
1915-19 average.....	193	164	187	168	187	125	-----	168	162	106
1920-24 average.....	147	126	192	189	149	148	143	160	151	86
1925-29 average.....	140	119	172	145	129	141	140	143	149	89
1930-34 average.....	70	76	119	74	72	94	106	86	90	66
1935-39 average.....	94	95	175	83	106	83	102	97	107	84
1940-44 average.....	123	119	245	131	159	133	172	143	154	103
1945 average.....	172	161	366	171	215	220	224	201	202	116
1946 average.....	201	195	382	228	244	226	204	226	233	120
1946										
April.....	185	171	368	190	210	244	282	220	212	117
May.....	198	188	369	194	214	248	177	215	211	114
June.....	200	195	370	210	219	261	185	223	218	116
July.....	215	244	369	249	242	249	163	240	244	123
August.....	203	225	388	271	242	203	162	233	249	122
September.....	207	221	396	285	236	210	154	236	243	122
October.....	218	222	410	304	255	208	151	244	273	132
November.....	220	187	399	236	342	186	207	230	263	124
December.....	224	186	406	242	334	211	166	232	264	124
1947										
January.....	223	184	399	240	336	196	238	236	290	121
February.....	235	185	390	246	334	203	275	245	262	119
March.....	283	212	390	257	360	215	299	266	280	123
April.....	277	223	387	260	358	223	295	269	276	120

¹ Federal Reserve Board; represents output of mining and manufacturing; monthly data adjusted for seasonal variation.

² Computed from data furnished by Bureau of Labor Statistics and Interstate Commerce Commission on pay rolls in mining, manufacturing, and transportation; monthly data adjusted for seasonal variation. Revised May 1946.

³ Bureau of Labor Statistics.

⁴ Monthly data adjusted for seasonal variation.

⁵ Revised.

⁶ Ratio of prices received to prices paid for commodities, interest, and taxes.

⁷ 1924 only.

Livestock

STOCKMEN can look for some drop in cattle prices late this summer and early fall as marketings of grass-fed cattle reach a seasonal peak. On the other hand, hog prices should hold up pretty well till the fall movement of spring pigs. The small lamb crop will keep lamb prices high for the rest of the year.

The prices of both meat and meat animals are higher than would be normally indicated by the volume of meat production and consumer spending. Hence, if business activity falls off this fall, prices of livestock and meats will drop.

Increased feeding and the large number of cattle and calves on farms point to a record or near-record cattle and calf slaughter this year. Corn Belt farmers had 13 percent more beef cattle on grain April 1 than a year earlier, although fed cattle marketings during the first 3 months of 1947 probably were a record for that period. Even so, supplies of prime and choice cattle will continue to be small though marketings will increase seasonally. Slaughter of good and medium grade cattle will continue very large.

The 1947 lamb crop probably will be the smallest in over 20 years, with lamb slaughter reduced sharply. This year's lamb crop probably will be down 7 to 12 percent from 1946. Sheep and lamb slaughter under Federal inspection in the first quarter of 1947 was almost a third less than a year ago. Federally inspected slaughter of mature sheep was only about half as much as last year.

Feed

THIS spring and early summer farmers will have ample supplies of feed grains, especially corn, to meet their usual feeding needs. Much larger quantities of feed are available for the deficit feed areas than in recent years, but feed prices are a lot higher. The late spring caused a greater-than-usual feeding of grain and a heavy feeding of hay and other roughages, especially in the South.

Weather through April was unfavorable for pastures and early seeding of

feed crops. Farmers may not plant as much oats as they planned to in early March, which may result in more acres of corn and soybeans.

The recent sharp increase in corn prices was caused by the strong commercial demand for corn for processing and export, as well as by high prices of hogs and most livestock products. Feeding ratios are generally less favorable to livestock producers than last winter.

The very strong commercial demand for corn, especially for export, is expected to continue for several months at least. The parity price of corn has been increasing in recent months, and the parity price next September, on which the loan rate for 1947 corn is to be based, may be higher than in 1946. In mid-April the parity price of corn was \$1.48 per bushel, compared with \$1.28 per bushel last September.

Corn feeding this spring and summer may be about the same as in 1946. About 10 to 15 percent more byproduct feeds will be available from April through September this year than a year earlier. The nonfeed uses of feed grains has been unusually large so far this feeding season, and is expected to continue large at least through the summer and fall months. During April-September 200 to 225 million bushels of corn are expected to be used for nonfeed purposes, including exports, compared with an average for those months of about 135 million bushels during the past 5 years. Marketings of corn since last October have been the largest on record, and are expected to continue large through this summer.

Fats and Oils

LARGER supplies will probably bring prices of fats and oils down by this fall. And a drop is likely in soybean and flaxseed prices.

But the price of the 1947 flaxseed crop will be supported at \$6 per bushel (Minneapolis basis). This means that farmers will get a record season average price. Soybean prices are to be supported at \$2.04 per bushel (for No. 1 or 2 green or yellow soybeans), or at 90 percent of the comparable price on October 1 if that is higher. Thus, soy-

bean prices will be at least as high in 1947-48 as in any war year. In mid-April 90 percent of the comparable price for soybeans was \$1.99 per bushel.

Farmers this year plan to boost their flaxseed acreage about 70 percent over last year, and increase their soybean acreage 6 percent or more. If growing conditions are favorable, the oilseed crops harvested this year will be a lot more than in 1946, with a corresponding increase in oil production.

High prices for hogs in relation to corn prices during recent months is likely to bring bigger hog production which will mean an increase in hog slaughter next year. This will help increase lard and grease production next season.

Net imports of fats and oils into the United States in 1947-48 also are likely to be larger than this year.

Wheat

FARMERS are starting to harvest the largest wheat crop in history—around 1¼ billion bushels.

This year will see more combines on farms than ever before. In the past 12 months nearly 50,000 new ones have been made for farmers in this country. These new ones bring the total to well over 400,000 combines available for harvest this season. Supplies of other harvesting equipment have eased considerably in recent months.

Four-fifths of the wheat crop is now harvested with combines. It takes only a fifth as many man-hours to harvest an acre of wheat with a combine as with a binder and thresher. Thus no general labor shortage for the wheat harvest is expected despite the large acreage.

Fruit

THE deciduous fruit crop this year is now expected to be at least average in size, judging from April 1 condition of trees and vines. The season is later than usual in the Eastern States but earlier in the Western States. Although the season in the 10 early peach States on April 1 was about 2 weeks later than usual and 4 weeks later than last year,

prospects were favorable for another good sized crop.

The 1947 strawberry crop was late in getting underway in volume this spring because of unfavorable weather. But total supplies are expected to be a little larger than last spring, because the mid-spring crop is 6 percent larger than last year, and the late spring acreage is 22 percent larger.

The citrus crop to be harvested after April 1 was more than a sixth larger than last season's crop at this time. The orange crop especially was larger. In California the Valencia crop of 7½ million boxes, usually marketed during late spring, summer and early fall, is 28 percent larger than last year. Processors have been taking more oranges but fewer grapefruit than in the corresponding part of last season. The pack of processed citrus will be about as large this season as last, and a big jump is expected in the pack of grapefruit and orange segments.

Late spring fruit supplies will be generally more plentiful than last year, and fruit growers can look for slightly lower prices than last spring despite the strong demand.

Stocks of canned fruits and fruit juices held by packers and distributors on March 1, 1947, were much larger than a year earlier, those of canned fruits alone being nearly twice as large as last year's small stocks. Stocks of frozen fruits on April 1 were about one-eighth larger than last year on that date.

Truck Crops

PRODUCTION of truck crops for fresh market in the rest of 1947, if no bigger than the winter and spring output, would make the total for the year well below last year's record, and only a little more than the 1936-45 average. The smaller production to date is the result of smaller acreages planted and lower yields per acre, due in large part to the unfavorable weather which delayed planting, slowed growth, and caused serious loss to crops ready for harvest in some important areas.

Smaller production than last year is expected for all spring crops, except snap beans, for which production forecasts have been made. Spring produc-

tion probably will be down 29 to 49 percent from last year for cucumbers, eggplant, onions, green peas, green peppers, and tomatoes, and the output of beets, green peas, shallots, and spinach will be well below average. However, the asparagus and watermelon acreages for late spring harvest will be slightly above last year and considerably above average, though the cabbage and onion acreages will be one-eighth to one-fifth smaller.

Acreages of cabbage, onions, and watermelons for summer harvest are 6 to 14 percent smaller than those of last summer.

Strong demand and smaller supplies of fresh vegetables mean that farmers will get higher prices than last year. This will be especially true of crops that are much below last season's output.

No general break in retail prices for canned or frozen vegetables is yet apparent. Canned vegetable stocks in the hands of wholesale distributors on the first of each month since early last fall have been from a third to a half more than last season. Stocks in packers' hands recently began building up and now are more than a year ago. Stocks of frozen vegetables April 1 this year were nearly double those of a year earlier.

Processors report that they plan to contract for and plant slightly smaller acreages this year than last of crops for canning and freezing. Acreage intended for 1947 is larger than that planted in 1946 by 2½ percent for sweet corn, but smaller by 4 percent for green peas and 7 percent for snap beans.

Prices of Farm Products

[Estimates of average prices received by farmers at local farm markets based on reports to the Bureau of Agricultural Economics. Average of reports covering the United States weighted according to relative importance of district and State]

Commodity	5-year average		Apr. 15, 1946	Mar. 15, 1947	Apr. 15, 1947	Parity Price Apr. 15, 1947
	August 1909-July 1914	January 1935- December 1939				
Wheat (bushel).....dollars.	0.884	0.837	1.58	2.44	2.40	2.03
Rye (bushel).....do.	.720	.554	1.95	2.81	2.47	1.66
Rice (bushel).....do.	.813	.742	1.84	2.36	2.33	1.87
Corn (bushel).....do.	.642	.691	1.16	1.50	1.63	1.48
Oats (bushel).....do.	.399	.340	.761	.890	.875	.918
Barley (bushel).....do.	.619	.533	1.16	1.46	1.42	1.42
Sorghum, grain (100-pound).....do.	1.21	1.17	2.40	2.57	2.70	2.78
Hay (tons).....do.	11.87	8.87	15.00	17.40	17.20	27.30
Cotton (pound).....cents.	12.4	10.34	23.59	31.89	32.26	28.52
Cottonseed.....do.			48.00		88.00	51.90
Soybeans (bushel).....dollars	1.96	.954	2.14	3.67	3.62	2.21
Peanuts (pound).....cents	4.8	3.55	18.70	9.91	10.4	11.0
Flaxseed (bushel).....dollars.	1.69	1.69	2.89	8.16	7.34	3.89
Potatoes (bushel).....do.	1.697	.717	1.63	1.39	1.47	1.70
Sweetpotatoes (bushel).....do.	.878	.807	2.45	2.35	2.33	2.02
Apples (bushel).....do.	.96	.90	13.80	2.93	3.03	2.21
Oranges on tree (box).....do.	2.29	1.11	2.49	1.36	1.58	3.48
Hogs (hundredweight).....do.	7.27	8.38	14.20	26.40	24.30	16.70
Beef cattle (hundredweight).....do.	8.42	6.56	13.60	18.50	18.30	12.50
Veal calves (hundredweight).....do.	6.75	7.80	14.30	20.20	19.60	15.50
Lambs (hundredweight).....do.	5.88	7.79	14.00	20.00	19.60	13.50
Butterfat (pound).....cents.	26.3	29.1	51.7	73.5	68.5	50.9
Milk, wholesale (100 pound).....dollars.	1.60	1.81	3.27	14.29	4.13	3.45
Chickens (pound).....cents.	11.4	14.9	24.3	26.6	27.7	26.2
Eggs (dozen).....do.	21.5	21.7	31.3	40.1	40.8	42.0
Wool (pound).....do.	18.3	23.8	42.3	40.5	40.2	42.1

¹ Revised.

² Comparable base price, August 1909-July 1914.

³ Comparable price computed under sec. 3 (b) Price Control Act.

⁴ 1919-28 average of \$1.12 per bu. used in computing parity.

⁵ 1919-28 average for computing parity price.

⁶ Does not include dairy production payments made directly to farmers by county PMA offices October 1943 to June 1946.

⁷ Adjusted for seasonality.

Potatoes

PRESENT stocks of old potatoes, while large, no longer appear so formidable as a few weeks ago. This is because of the much smaller early potato crop in prospect. Both the acreages planted and the production for early commercial potatoes this year are expected to be well below last year. Prices farmers receive for new potatoes will average moderately higher than last year.

The price-support program for 1947 late-crop potatoes stresses acreage-goal compliance, dealer participation on a contract basis, and the possibility of resale in domestic consumption channels of potatoes acquired by the Government under the support program. Other major points of difference from the 1946 program are (1) loans, while available, no longer will be the principal means of late crop price support and (2) the Department will assist and encourage the potato industry to utilize its own facilities to maintain orderly marketing and improve the quality offered to consumers by developing marketing agreements and orders in certain areas.

It now appears probable that 1947 production of potatoes will not greatly exceed the quantity which the market will take at support prices or better. And the 1947 output could fall considerably short of enough if there is much unfavorable weather. If farmers carry out their early March intentions, the acreage of potatoes planted this year would be the smallest planted since 1884. But some growers may plant more than their planting intentions indicated.

Very few sweetpotatoes were left for shipping after the middle of May. Early March planting intentions of growers point to a total 1947 acreage only 3 percent smaller than that planted in 1946, but about 10 percent less for the important commercial State of Louisiana.

Farm Land Values

MORE people bought and sold farm land in 1946 than in 1945, and real estate prices kept on climbing. More than half the buyers paid all cash. By the first of March this year, farm real

estate prices averaged nearly double prewar (1935-39). In 20 States, they were more than double, with prices of farm land in Kentucky increasing far more than in any other State.

Massachusetts farm real estate shows the least increase over prewar—a “mere” 29 percent. West of the Mississippi, only North and South Dakota had increases of less than 50 percent. Maine, New Hampshire, Massachusetts, and Rhode Island were the only eastern States where farm real estate prices were up less than 50 percent.

In 42 States, farm land on March 1 was valued at from half again to nearly two and three-quarters times as much as prewar. Land values now average only 6 percent below the 1920 peak—with 20 States already topping that peak.

There were about 12 percent more transfers of farm real estate in 1946 than in 1945, with the biggest increase in the first 3 months. The rise continued through the spring and summer months, ordinarily a slack time in the farm real estate market. In October, November, and December, however, the market was not quite as active as in the fourth quarter of 1945.

Rising Prices Pinch Farmers

NEARLY everything farmers bought, or wanted to buy, in mid-April cost more than in mid-March. Many prices were at new highs. This pushed parity prices up to new records for all major farm products but milk and butterfat. The prices of these two items were adjusted for seasonal variation.

At the same time, the prices farmers received for most of their products fell off from the record and near-record highs of March. They were down an average of about 1½ percent. In April farmers got an average of 120 percent of parity, in March 123 percent. This means, for example, that it took a bigger milk check in April than in March to buy the same amount of goods.

Even though April prices of many farm products dropped a bit from March, farmers were still getting pretty good prices for their products. The price of hogs at \$24.30, down \$2.10 from the March record, was the second high-

est in history. Wheat at \$2.40, off 4 cents from March, was only 16 cents under the June 1920 record.

April prices of beef cattle, veal calves, and lambs sagged a little below the March peaks, but were still at near-record levels. April prices were also a little lower for rye, rice, oats, cotton, soybeans, butterfat, and whole milk. On the other hand, prices of corn, barley, sorghums, hay, cotton, chickens, and eggs advanced a little during April and brought them nearer their former peaks.

Flaxseed prices dropped sharply, from \$8.16 a bushel in mid-March to \$7.34 in mid-April. However, the April price was still the second highest. Peanut prices went up a half cent to nearly 10½ cents a pound, close to the 11.2-cent high in early 1920. Potatoes advanced a few cents a bushel.

But getting back to the prices of things farmers buy, the advances in prices of feed, clothing, and building materials, especially lumber, brought about most of the rise in parity prices. During the first quarter of 1947 the average of all prices paid by farmers (including interest and taxes) rose nearly 7 percent from the last quarter of 1946. Over a third of the increase was caused by higher building material prices and a fourth by higher food and clothing prices. The rest of the increase resulted from general price advances of nearly everything else farmers buy.

The sharp rise in building material prices paced the 28 percent increase from March 1946 to March 1947 in the average of all prices paid by farmers. Prices of building materials, particularly lumber, were more than 50 percent higher. Food prices were up 39 percent, clothing 24 percent, and furniture and furnishings 20 percent. These rises pushed the average prices of all things used in farm homes up 30 percent, and the prices of most items were still higher in April.

Prices of things used in farm production also advanced from March 1946 to March 1947. Next to the 52 percent jump in building material prices

was the 27 percent rise in feed prices, with seed prices up 25 percent, farm machinery 10 percent, and other farm equipment 8 percent. And prices of many of these items rose further in April. Fertilizer prices in April 1947 were 11 percent more than in April 1946.

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